

CLAIMS

1. A pinch valve comprising:

a main body formed with a groove for receiving an elastic tube body forming part of a flow passage of a fluid;

a cylinder body of a closed-bottom tubular shape fixed to said main body and having a handle support portion provided on an inner periphery thereof with a female screw portion, a cylinder portion arranged below said handle support portion and formed with a through hole in a center of a bottom thereof, and an air port communicating with a bottom end of said cylinder portion at a peripheral side thereof;

a piston sliding up and down against an inner periphery of said cylinder portion in a sealing manner and having a connecting portion suspended from a center thereof so as to extend through said through hole of said cylinder portion in a sealing manner;

a pressing piece fixed to a bottom end of said connecting portion of said piston so as to press against said tube body when said piston descends;

a cylindrical handle having a female screw portion formed on an inner periphery thereof and a male screw portion formed on a bottom outer periphery thereof and having a pitch larger than a pitch of said female screw portion, said male screw portion of said cylindrical handle adapted to be screwed with said female screw portion of said handle support portion;

a hollow stem having an annular projection formed at a top inner periphery thereof and a male screw portion formed on an outer periphery thereof so as to be screwed with said female screw portion of said handle, said hollow stem accommodated in said cylinder body so as to allow said hollow stem to slide up and down and so as to prevent said hollow stem from turning; and

a piston pusher having an upper flange formed at a top end thereof and a lower flange formed at

a bottom end thereof, said piston pusher inserted in said hollow stem so as to be able to slide up and down with a bottom end surface thereof contacting a top end surface of said piston, said upper flange engaging with a top surface of said annular projection of said hollow stem so  
5 that a spring is supported between said lower flange and a bottom surface of said annular projection of said hollow stem.

2. The pinch valve according to claim 1, wherein a  
10 pitch difference between said female screw portion and said male screw portion of said handle is in a range of from  $1/20$  to  $1/5$  of the pitch of said male screw portion of said handle.

3. The pinch valve according to claim 1, wherein  
15 an inner periphery of a portion between said handle support portion and said cylinder portion of said cylinder body is formed with a recess and said hollow stem has a flange accommodated in said recess of said cylinder body at a bottom end thereof.

4. The pinch valve according to claim 3, wherein a  
20 pitch difference between said female screw portion and said male screw portion of said handle is in a range of from  $1/20$  to  $1/5$  of the pitch of said male screw portion of said handle.

5. The pinch valve according to claim 1, wherein  
25 said pressing piece is accommodated in an oval slit extending in a direction perpendicular to an axis of said flow passage at a bottom end of said cylinder body.

6. The pinch valve according to claim 5, wherein a  
30 pitch difference between said female screw portion and said male screw portion of said handle is in a range of from  $1/20$  to  $1/5$  of the pitch of said male screw portion of said handle.

7. The pinch valve according to claim 1, wherein  
35 connecting portions for connecting said tube body to another tube are provided at the two sides of said main body.

8. The pinch valve according to claim 7, wherein a pitch difference between said female screw portion and said male screw portion of said handle is in a range of from 1/20 to 1/5 of the pitch of said male screw portion of said handle.

9. The pinch valve according to claim 1, wherein a material of said tube body comprises EPDM, a fluororubber, silicone rubber, a fluororesin, or a composite of them.

10. The pinch valve according to claim 9, wherein a pitch difference between said female screw portion and said male screw portion of said handle is in a range of from 1/20 to 1/5 of the pitch of said male screw portion of said handle.

11. The pinch valve according to claim 9, wherein said tube body is comprised of a composite of a fluororesin and silicone rubber.

12. The pinch valve according to claim 11, wherein a pitch difference between said female screw portion and said male screw portion of said handle is in a range of from 1/20 to 1/5 of the pitch of said male screw portion of said handle.